



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,832	04/11/2002	Michael Meyer	1908	2427

7590 09/14/2005

Striker Striker & Stenby
103 East Neck Road
Huntington, NY 11743

EXAMINER

HUNG, YUBIN

ART UNIT	PAPER NUMBER
----------	--------------

2625

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,832

Applicant(s)

MEYER ET AL.

Examiner

Yubin Hung

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-10, 12/9/8, 12/10/8, 13, 16-19 is/are rejected.
- 7) ☒ Claim(s) 11, 12/11/8, 14, 15, 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/10/02, 4/11/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION***Drawings***

1. The drawings are objected to because:
 - Replacement sheet for Figure 1 is not labeled "Replacement Sheet" or "New Sheet"
 - Figures 2-4 contain blocks without descriptive text labels (e.g., blocks labeled 11 and 21 in Fig. 2)
 - Figures 2 and 3: it is not clear what is being compared with S1, S2 and S3

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:
- P. 3: The brief description of the drawings is inadequate; specifically, for figures 2-4, it is not clear what the flow charts are about

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8-10, 12 (the versions dependent from claims 8, 9 or 10), 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al. (GB 2,150,724A), and in view of Wirtz et al. (US 6,507,660).

5. Regarding claim 19, and similarly claims 8, 9 and 13, Hall discloses
- means for generating a current image in a view field
[Fig. 1, ref. A; P. 1, lines 33-35, 84-87]
 - means for establishing a current image detected in the view field and a reference image
[Fig. 1, refs. A & 8; P. 1, lines 33-38, 84-87, 110-112]
 - means for calculating a similarity measurement for at least one region of the current image and a corresponding partial image of the reference image

Art Unit: 2625

- [Fig. 1, refs. 5; P. 1, lines 39-41, 60-63, 108-111. Note that the comparison means calculates a difference (a similarity measurement) between non-excluded areas of the two images]
- means for identifying a change of the at least one region when the *similarity measurement* falls below a threshold value
[Fig. 1, refs. 6 & 24; P. 1, lines 41-44, 112-114. Note that "difference" is the opposite of "similarity" (e.g., correlation); therefore in determining whether a change has occurred the respective "directions" of the comparison with a threshold are also the reverse of each other (i.e., greater than the threshold in the case of difference and smaller in the case of similarity)]
 - means for outputting an alarm signal when the at least one region is identified as changed for a predetermined time interval that is longer than a corresponding time interval that the *current image* is detected to be changed
[Fig. 1, refs. 18 & 19 (alarm indicator); P. 1, lines 53-56; P. 2, lines 96-102]
 - wherein said means for generating said current image comprises a stationary image capturing device, said means for calculating said correlation value comprises a computer for processing image data and aid computer includes means for testing whether or not said *similarity measurement* is above or below said threshold value in order to identify said change
[Fig. 1, ref. A and P. 1, lines 33-35 (image capturing device); P. 1, line 94-P. 2, line 7. Note that the electronic control system is considered a computer]

Hall does not expressly disclose that the change detection is based on the correlation (the *similarity measure*) of the edge images derived from the current image and the reference image.

However, Wirtz teaches correlating the edge images corresponding to an acquired image and a reference image in order to determine the similarity of the two images. [See Fig. 4; Col. 4, lines 57-67. Note that "similar" is equivalent to "little change."]

Hall and Wirtz are combinable because they have aspects that are from the same field of endeavor of patter matching.

At the time of the invention, it would have been obvious to modify Hall with the teachings of Wirtz by correlating edge images in order to determine whether change has occurred. The motivation would have been to improve accuracy as well as the processing speed by facilitating real-time implementation, as Wirtz indicates in column 1, lines 41-52.

Therefore, it would have been obvious to combine Wirtz with Hall to obtain the invention as specified in claim 19.

6. Regarding claim 10, since an alarm is output if the duration of the change is greater than $T1$, it is inherent that an alarm will also be output during $T1 \leq T2 \leq T1 + d$, where d is the duration of the alarm.

7. Regarding claim 12, Hall further discloses

- the image capturing device is a video camera [Fig. 1, ref. A; P. 1, lines 85-86]

8. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al. (GB 2,150,724A) and Wirtz et al. (US 6,507,660) as applied to claims 8-10, 12, 13 and 19, and further in view of Cayzac (US 4,236,180).

Art Unit: 2625

9. Regarding claims 16 and 17, the combined invention of Hall and Wirtz discloses all limitations of their predecessor claim 13.

The combined invention of Hall and Wirtz does not expressly disclose

- (claim 16) positioning said stationary image capturing device so that an object to be monitored is in said view field and said variations include motions of said object or changes in said object
- (claim 17) said object is an exhibited object in a museum

However, Cayzac teaches positioning a camera in a museum to observe motions in such a way that its field of view includes valuable exhibited objects and their immediate surroundings. [Col. 3, lines 13-21.]

The combined invention of Hall and Wirtz is combinable with Cayzac because they have aspects that are from the same field of endeavor of video surveillance.

At the time of the invention, it would have been obvious to modify the combined invention of Hall and Wirtz with the teachings of Cayzac by positioning a camera in a museum to observe motions in such a way that its field of view includes valuable exhibited objects and their immediate surroundings. The motivation would have been to provide increased security to a museum without the need of adding more guards (and possibly can eliminate some and therefore lower the cost), as indicated by Cayzac in column 1, lines 51-57.

Art Unit: 2625

Therefore, it would have been obvious to combine Cayzac with Hall and Wirtz to obtain the inventions as specified in claims 16 and 17.

10. Claim 18 rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al. (GB 2,150,724A) and Wirtz et al. (US 6,507,660) as applied to claims 8-10, 12, 13 and 19, and further in view of Ishida et al. (US 5,745,160).

11. Regarding claim 18, the combined invention of Hall and Wirtz discloses all limitations of its predecessor claim 13.

The combined invention of Hall and Wirtz does not expressly disclose

- (claim 16, parent of claim 18) positioning said stationary image capturing device so that an object to be monitored is in said view field and said variations include motions of said object or changes in said object
- (claim 18) said object is an automatic teller machine and said at least one region includes at least one of a keypad field, a cash distribution slot and a card slot of the automated teller machine

However, Ishida teaches positioning a camera in such a way that the whole interior of a facility, including an ATM, is within its field of view. [Fig. 2, refs. 12 & 111; Col. 5, lines 54-65. Note that an ATM typically includes a keypad, a cash distribution slot and a card slot; any changes (e.g., a card being inserted) obviously will be captured by the camera. Note further that this ATM is an automatic teller machine, as is correctly described in column 13, last line).]

Art Unit: 2625

The combined invention of Hall and Wirtz is combinable with Ishida because they have aspects that are from the same field of endeavor of video surveillance.

At the time of the invention, it would have been obvious to modify the combined invention of Hall and Wirtz with the teachings of Ishida by positioning a camera in such a way that the whole interior of a facility, including an ATM, is within its field of view. The motivation would have been to provide the capability to capture aspects of ATM transactions (among other things) for security and diagnostics purposes.

Therefore, it would have been obvious to combine Ishida with Hall and Wirtz to obtain the invention as specified in claim 18.

Allowable Subject Matter

12. Claims 11, 12 (the version that is dependent from claim 11, referred to as claim 12/11/8 to reflect the path from its corresponding independent claim), 14, 15 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

13.1 Regarding claim 14, and similarly claims 11 and 20, the combined invention of Hall and Wirtz discloses all limitations of its parent, claim 13. In addition, closest art of record Gonzalez et al. (*Digital Image Processing*, 1st ed., 1993, pp. 583-585) discusses the effect of intensity on the value of correlation between two images and discloses an approach to overcome the problem [p. 584]; Muraka (US 6,463,432), on the other hand, discloses using the sum of squared difference (a kind of quadratic deviation measurement) as a similarity measurement [Fig. 25, refs, S3503, S3504; Col. 19, line 57-Col. 20, line 2]. However, none of these references teaches or suggests removing effect of the brightness difference from the correlation calculation *after* an initial correlation

[**Examiner's comment:** Regarding claims 11, 14 and 20, per page 5, lines 27-29 of the specification, the calculation of the change in the brightness should have been made for the region in the *current image* (not the *current edge image* as in the claims) in comparison to the reference image (not the *reference edge image*). Applicant is urged to review the claims and amend as appropriate.]

Conclusion and Contact Information

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Art Unit: 2625

- Krubiner et al. (US 6,509,835) – Discloses an intrusion detector system that generates an alarm only if the change level is greater than a threshold and the duration is smaller than another threshold
- Brown (US 5,455,561) – discloses a security monitor reporter that uses both change magnitude and duration to determine whether the change is valid (not a nuisance)
- Peterson et al. (US 5,453,733) – discloses an intrusion alarm system that analyzes signals at different threshold levels to understand false alarm conditions
- Matsushita (JP 04266192A) – discloses an automatic cash transaction machine with a camera capable of imaging the card used in a transaction
- Gavrilu et al. (« Fast Correlation Matching in Large (Edge) Image Databases », *SPIE Vol. 2368 Image and Information Systems* (1994), pp. 104-116) – discloses a fast, correlation-based edge image matching approach

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The

Art Unit: 2625

fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung
Patent Examiner
September 8, 2005



BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600